

Course ID:	Course Title:	Winter 2024
ECOL 319	Terrestrial Communities and Ecosystems	Prerequisite: BIO 213, BIO 310
		Credits: 3

Class Information		Instructor Information		Important Dates	
Delivery:	Online	Instructor:	Matthew Morris, PhD	First Day of Class:	January 8
Days:	NA	Email:	Matthew.Morris@ambrose.edu	Last Day to Add/Drop:	January 21
Time:	NA	Phone:	403-410-2000 ext. 6932	Last Day to Withdraw:	March 28
Room:	NA	Office:	A2158	Last Day to Apply for Coursework Extension:	April 2
Lab/Tutorial:	3 hours/wk	Office Hours:	Wed/Fri 9:30-12	Last Day of Class:	April 12
Final Exam:	Thurs Apr 18 9 am – 12 pm L2084				

Important Dates and Information

For a list of all important dates and information regarding participating in classes at Ambrose University, please refer to the Academic Calendar at <https://ambrose.edu/academic-calendar> .

Course Description

This course will explore patterns and processes that influence biotic interactions in terrestrial systems. Topics including succession, productivity, diversity, disturbance, and nutrient dynamics will be discussed as they relate to conservation and management.

Students will require a laptop for this class with an installed version of the free statistical software environment R (<https://www.r-project.org/>), with an installed data visualization package *ggplot2* for R (<https://ggplot2.tidyverse.org/>) .

Expected Learning Outcomes

Understand:

- Students will demonstrate a comprehensive understanding of state factors and interactive controls influencing terrestrial communities and ecosystems.
- Students will comprehend the intricate relationships between climate, soil formation, and hydrologic cycles in terrestrial ecosystems.
- Students will explain the concepts of gross and net primary productivity, gross and net secondary productivity, and carbon balance in terrestrial communities.
- Students will understand the processes and significance of nutrient cycling, with a focus on nitrogen cycling and plant nutrient use.
- Students will grasp the principles of landscape ecology and apply them to analyze the urban biome, considering the unique challenges and opportunities human-modified environments present.

Assess:

- Students will assess the hydrologic and carbon balance within a given terrestrial ecosystem, considering both natural and anthropogenic influences.
- Students will evaluate different approaches to land management, considering ecological sustainability and biodiversity conservation.

Research:

- Students will conduct hands-on ecological research using appropriate tools for data collection.
- Students will employ statistical analysis techniques to interpret and draw conclusions from collected data.
- Students will design and execute a research project, collecting ecological data from the campus grounds, applying principles learned in class.
- Students will gain proficiency in using R for data analysis and visualization, producing publication-quality figures.

Communicate:

- Students will communicate their research findings effectively through the production of a formal, well-structured report.
- Students will present a chosen topic related to terrestrial communities and ecosystems in a clear and engaging manner, demonstrating effective communication skills.

Form Character:

- Students will demonstrate an awareness of ethical considerations in ecological research and land management practices.
- Students will develop critical thinking skills by analyzing and synthesizing information to solve complex ecological problems.
- Students will engage in professional behavior during lab work, fostering collaboration and effective teamwork.

Textbooks

Chapin III FS, Matson PA, Vitousek PM (2011) *Principles of Terrestrial Ecosystem Ecology Second Edition*. Springer.

Additional scientific papers may be assigned.

Course Schedule

This directed study will have weekly lectures and labs, but there is no one assigned date for doing the lecture or lab. There are, however, due dates, so pay close attention to when items are due.

Week of (Sunday date listed)	Topic 1	Topic 2	Readings	Textbook questions:
Jan 7	Introduction	Terra Firma	Chapter 1	Ch 1: 2, 3, 4
Jan 14	State Factors	Climate	Chapter 2 Chapter 4a	Ch 2: 1 Ch 4: 1
Jan 21	Climate	Biomes	Chapter 2	Ch 2: 2, 3, 11 (select one biome)
Jan 28	Soil: Formation and Transformation	Hydrologic Cycle	Chapter 3 Chapter 4b	Ch 3: 2, 8, 9 Ch 4: 8
Feb 4	Photosynthesis	Gross Primary Productivity	Chapter 5	Ch 5: 4
Feb 11	Net Primary Productivity	GSP and NSP	Chapter 6 Chapter 10	Ch 6: 5, 10
Feb 17	TEXTBOOK QUESTIONS DUE			
Feb 18	READING BREAK	READING BREAK		
Feb 25	Decomposition	NECB	Chapter 7	Ch 7: 1, 3, 5
Mar 3	Plants and Nutrients	Nutrient Cycling	Chapter 8 Chapter 9	Ch 8: 3, 8 Ch 9: 2, 9
Mar 10	Species Effects on Ecosystems	Why is the Land Green?	Chapter 10 Chapter 11	Ch 10: 1, 2, 4 Ch 11: 1, 2
Mar 17	Time	Landscape Ecology	Chapter 12 Chapter 13	Ch 12: 1, 5, 7 Ch 13: 1, 2
Mar 24	Land Management	Urban Biome	Optional readings: Chapters 14 and 15	
Mar 31	Urban Processes	Conclusion		
April 7	TEXTBOOK QUESTIONS DUE			
April 7	Presentations	Presentations		

Lab Schedule

Labs will take approximately three hours a week to complete. You will receive your materials in advance; it will be up to you to complete the exercise on your own time, prior to the due date for the assignment. It is strongly encouraged that students find a time within their schedule to do the lab together, but this is not required. No formal meeting in an official laboratory space is required.

Week of (Sunday date listed)	Lab exercise	Due date (by 11:59 pm)
Jan 7	No lab	
Jan 14	Setting up R	Jan 20
Jan 21	Grass: a tutorial on replicating scientific figures	Jan 27
Jan 28	Soils	Feb 3
Feb 4	Creating a mind map	Feb 10
Feb 11	Measuring trees	Feb 17
Feb 18	READING BREAK	
Feb 25	Measuring production	March 2
Mar 3	Measuring canopies	Mar 9
Mar 10	<i>Sahara</i>	Mar 16
Mar 17	Scavenger hunt	Mar 23
Mar 24	Data analysis/final report	Mar 30
Mar 31	Presentation preparation	Return all borrowed equipment
April 7	Presentation submission	Textbook questions due

Requirements:

Research paper – 15%

Final exam – 30%

Labs – 45%

 R and grass prelab – 3%

 Grass – 5%

 Mind map – 4%

 Measuring trees – 4%

 Measuring production – 4%

 Canopy – 4%

 Sahara – 3%

 Scavenger hunt – 3%

 Ecology data report – 10%

 Ecology data presentation – 5%

Textbook questions – 10% (5% before reading break, 5% after reading break)

Attendance:

This class is a directed study. As such, lecture and lab materials will be prerecorded and made available online. It is your responsibility to abide by the schedule, but attendance will not be tracked.

Grade Summary:

The available letters for course grades are as follows:

Grad	Percent	Grade Point Value	Description
A+	96-100	4.00	Outstanding
A	92-96	4.00	Excellent - superior performance, showing comprehensive understanding of subject matter.
A-	88-92	3.70	
B+	83-88	3.30	
B	78-83	3.00	Good-clearly above average performance with knowledge of subject matter generally complete.
B-	73-78	2.70	
C+	68-73	2.30	
C	64-68	2.00	Satisfactory – basic understanding of the subject matter. Grade point average below 2.00 is not sufficient for promotion.
C-	60-64	1.70	Minimum grade required if needed as a prerequisite course
D+	55-60	1.30	
D	50-55	1.00	Minimal pass – marginal performance; generally insufficient preparation for subsequent courses in the same subject.
F	<50	0	Fail – unsatisfactory performance or failure to meet course requirements.

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Late assignment policies

Homework or lab assignments cannot be submitted late without cause and approval from the professor.

Issue	Communicated to professor or lab instructor in advance?	Penalty
Late by 5 min – 7 days	Yes	5% deducted per day
Late by 5 min – 7 days	No	10% deducted per day
Late by >7 days	-	0 on assignment
No name on assignment	-	0 on assignment

Assignments officially receiving a grade of 0 as a penalty will still be “graded” so that you can have feedback before the exam, even if your official grade is 0.

Missed midterms or final exams, without cause, cannot be made up.

Use of artificial intelligence (AI)

In this class, you will be conducting a variety of written assignments, including an experimental report. All work should be your own. Use of AI-generated text or images is not permitted and will be considered an example of plagiarism (see policy below). For this reason, written assignments will be submitted through Moodle and assessed for AI content and other forms of plagiarism via Turnitin.

Plagiarism policy

Consult the Academic Calendar for Ambrose’s position on plagiarism and its consequences. In brief, it is your responsibility as a citizen of Ambrose to be aware of the policies of Ambrose and abide by them. Ignorance is no excuse. Plagiarism will not be tolerated.

Examples of plagiarism include, but are not limited, to:

1. Copying an assignment from someone else and submitting it as your own work.
2. Working with a friend and writing down identical answers, whether you understand the content or not, and submitting the assignments separately.
3. Quoting directly from a source without supplying quotation marks or a citation.
4. Quoting directly from a source without supplying quotation marks, even if it is referenced.
5. Copying nearly word-for-word from a source, changing only the occasional word, without providing quotation marks, even if it is referenced.
6. Submitting an assignment in which >30% of the content is properly quoted; that is, at least 70% of the words in an assignment need to be your own. A general rule of thumb: for every line quoted, there should be three lines of your own material explaining that quote.
7. Submitting the same or similar assignment for more than one class, or more than one iteration of the same class.
8. Not citing illustrations used in a paper.
9. Submitted AI-generated content as your own.

Penalties for plagiarism

Offence	Consequence
First	0% on assignment, no chance to resubmit; report on academic misconduct filed with the registrar
Second	F in course; report on academic misconduct filed with the registrar
Third	F in course and recommendation to registrar for expulsion; report on academic misconduct filed with the registrar

Note that Ambrose has an appeals process in place if you feel that allegations of plagiarism are unfounded; these are for final marks only, and not for individual assignments.

Note that my record of a student's past plagiarism does **not** reset with each semester.

Ambrose University Important Policies & Procedures:

Registration

Registration is the process of selecting and enrolling in classes for upcoming semesters. Only students who are registered will be permitted to attend class and receive a grade for the course. You are responsible for ensuring that the courses you take are appropriate for your program, that they do not have any scheduling conflicts, that they have the necessary prerequisites and that they meet all degree requirements.

Withdrawal From A Course

Prior to the Add/Drop deadline: through the student registration system whereby course(s) will be removed with no academic or financial penalty. After the Add/Drop deadline and until the Withdrawal deadline: through submission of the 'Withdrawal from Course' form whereby course(s) will remain on the permanent academic record/transcript with the symbol 'W'. (See ambrose.edu/registrar/request-forms.) Students who withdraw from more than 30 credits attempted at Ambrose University will be required to withdraw from their program. Students considering withdrawing from courses are encouraged to discuss with their Faculty Advisor and/or the Office of the Registrar questions relating to their withdrawal decision specifically relating to financial assistance, study permit requirements, prerequisites for subsequent courses, readmission, and/or graduation timeline. Students who do not formally withdraw from a course are still considered registered in the course, even if they are no longer attending classes. In this case, students will be assigned a grade based on coursework completed as per the course syllabus and are responsible to pay the tuition and fees assessed for the course. Under extenuating circumstances, students may request from the Office of the Registrar a course(s) withdrawal after the Withdrawal deadline and until the last day of classes. Extenuating circumstances typically consider situations such as medical emergencies, compassionate grounds, or unforeseen conditions/situations beyond the students' control that arise after the start of the semester and are considered on a case-by-case basis. Supporting documentation from a physician or Registered Health Professional must accompany this request.

Coursework Extensions

Should a request for a time extension on coursework exceed the end of the term, a *Coursework Extension Application* must be completed and submitted to the Office of the Registrar. The extension (if granted) will be recorded on the student record. Extensions are granted at the discretion of the instructor and registrar. If granted, time extensions do not excuse you from a final examination where one has been scheduled for the course. More conditions apply.

Exam Scheduling

Students who find a conflict in their exam schedule must submit a *Revised Final Exam Time Application* to the Office of the Registrar by the deadline noted in the Academic Calendar. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; or 2) the scheduled final examination slot results in three consecutive examination periods. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Communication

Your Ambrose email account is the University's primary and official mode of communication with you. Information delivered to your Ambrose email is considered official notification. Ambrose University is not responsible for your failure to receive important information delivered to your Ambrose email.

Lecture Recording

The recording of lectures or any other classroom academic activity, other than an audio recording as an accommodation, is prohibited except at the discretion of the instructor. Any use other than that agreed upon with the instructor constitutes academic misconduct and may result in suspension or expulsion. Permission to allow a lecture recording is not a transfer of any copyrights, so such recordings may be used only for individual or group study with other students enrolled in the same class and may not be reproduced, transferred, distributed or displayed in any public or commercial manner. Student must destroy recordings in any, and all formats at the end of the semester in which they are enrolled in the class. All students recording lectures, must sign the Permission Form to audio record lectures which is available through the Office of the Registrar.

Standards of Behaviour in the Classroom Setting

Learning is an active and interactive process, a joint venture between student and instructor and between student and student. Some topics covered within a class may lead to strong reactions and opinions. It is important that Students understand that they are entitled to hold contradictory beliefs and that they should be encouraged to engage with these topics in a critical manner. Committing to this type of "active learning" significantly increases the learning experience for both teacher and student, and reflects the Christian imperative to pursue truth, which lies at the heart of the Ambrose educational experience. However, active discussion of controversial topics will be undertaken with respect and empathy, which are the foundations of civil discourse in the Classroom Setting. Primary responsibility for managing the classroom rests with the instructor. The instructor may direct a student to leave the class if the student engages in any behaviour that disrupts the classroom setting. If necessary, Ambrose security will be contacted to escort the student from class.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that

deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. The academic calendar can be found at <https://ambrose.edu/academics/academic-calendar>

Privacy

Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Academic Success and Supports

Accessibility Services

Academic accommodation is provided to Ambrose students with disabilities in accordance with the Alberta Human Rights Act and the Canadian Charter of Rights and Freedoms. Provision of academic accommodation does not lower the academic standards of the university nor remove the need for evaluation and the need to meet essential learning outcomes. Reasonable accommodations are tailored to the individual student, are flexible, and are determined by considering the barriers within the unique environment of a postsecondary institution. It can take time to organize academic accommodations and funding for disability-related services. Students with a disability who wish to have an academic accommodation are encouraged to contact Accessibility Services as early as possible to ensure appropriate planning for any needs that may include accommodations. Staff can then meet with students to determine areas to facilitate success, and if accommodations are required, ensure those accommodations are put in place by working with faculty.

Learning Services

Learning Services provides support with

- **research and communication skills** (e.g., writing a paper, researching, giving a presentation), and
- **subject-specific skills** (e.g., solving a chemistry problem, reconciling a general ledger, understanding a philosophical argument).

We offer workshops, one-to-one tutoring, and more, and all of our services are **free** to students currently enrolled at Ambrose University. To learn more, please visit <https://ambrose.edu/sas/learning-services>.

Mental Health Support

All of us need a support system. We encourage students to build mental health supports and to reach out when help is needed.

On Campus:

- Counselling Services: ambrose.edu/counselling

- For immediate crisis support, there are staff on campus who are trained in Suicide Intervention Skills and can help you access mental health support. See <https://ambrose.edu/student-life/crissupport> for a list of staff members.
- For additional wellness resources go to the Ambrose wellness page: <https://ambrose.edu/wellness>

Off Campus:

- Distress Centre - 403-266-4357
- Alberta Mental Health Helpline - 1-877-303-2642 (Toll free)
- Sheldon Chumir Health Care Centre - 403-955-6200
- Emergency - 911

Sexual Violence Support

We are committed to supporting students who have experienced gender based sexual violence in the past or while at Ambrose. Many of the staff, faculty, and student leaders have received Sexual Violence Response to Disclosure training. We will support you and help you find the resources you need and you can access information about reporting. Information about the Sexual Violence policy and on and off campus supports can be found on our website— ambrose.edu/sexual-violence-response-and-awareness.

Off Campus:

- Alberta's Oneline for Sexual Violence - 1-866-403-8000 call or text
- Clinic: Sheldon Chumir Health Centre - 403-955-6200
- Calgary Communities Against Sexual Abuse - 403-237-5888
- Chat: www.calgarycasa.com

Note: Students are strongly advised to retain this syllabus for their records.